SPIDELL and ASSOCIATES
Environmental Consultants

May 1, 2008

Jonathan Pettit
Permit Writer
Air Quality Division
Idaho Department of Environmental Quality
1410 North Hilton
Boise, Idaho 83706

RE: North Idaho Energy Logs, Moyie Springs, Facility ID No. 021-0015, Permit to Construct Application April 2008.

Dear Mr. Pettit,

North Idaho Energy Logs has asked me to forward this Application for a Permit to Construct.

The Air Quality Model and Model Data is included in the CD that is attached to the cover page of the Application.

I have also, attached a copy of my transmittal letter I used to forward the Application Fee and a copy of the check paid to the Fiscal Office.

If I can answer questions or provide further information, please contact me at (208) 336-4862.

Sincerely,

Ron Spidell
cc: Clark Fairchild

SPIDELL and ASSOCIATES
Environmental Consultants

May 1, 2008

Fiscal Office
Idaho Department of Environmental Quality
1410 North Hilton
Boise, Idaho 83706

RE: North Idaho Energy Logs, Moyie Springs, Facility ID No. 021-0015, Permit to Construct Application April 2008.

Dear Sirs;

Please find attached a check from North Idaho Energy Logs, Inc of Moyie Springs, Idaho 83845 for the $1,000.00 Permit Application Fee.

Sincerely,

Ron Spidell
cc: Clark Fairchild

TABLE OF CONTENTS

APPENDIXES

EXECUTIVE SUMMARY

North Idaho Energy Logs (NIEL) proposes to modify its existing facility located in Moyie Springs, Idaho and receive a permit that will supersede their Tier II Operating permit #021-00015 which has expired. The following are the modifications being proposed in this application:

- Modify the rotary drum dryer burner size and fuel from natural gas to wood chips
- Modify the rotary drum dryer to increase throughput from five tons per hour to eight tons per hour.
- Install a new dryer cyclone to accommodate increased throughput

NIEL will have a controlled potential to emit (PTE) below 100 tons per year (tpy) for particulate matter (PM), particulate matter with less than ten microns in diameter (PM10), oxides of nitrogen (NOx), sulfur dioxide (SO2), volatile organic compounds (VOC), and carbon monoxide (CO). The facility will remain minor with respect to both Title V permitting and New Source Review.

1.0 PROCESS DESCRIPTION

The raw material consists primarily of raw wood and bark. Stockpiled material is unloaded into a receiving bin and metered and is then sent to the dryer via an infeed conveyor. The dryer and burner system is designed by SolaGen Incorporated Inc. and is designed to dry 40% moisture content wood chips. The burner is rated at 30 MMBtu/hr and will consume 3,850 lb/hr of wood for fuel.

The drum dryer is a 10-foot diameter x 42-foot long triple pass rotary dryer. The material is impacted by the hot gases from the wood burner and furnace to remove the water from the wood. The dried wood then is conveyed through ducting into a separation cyclone for extraction from the warm humid dryer exhaust air. The dryer exhaust gas passes through a blower and is discharged to atmosphere via the dryer stack.

The cyclone is designed to separate the dried material from the air at an efficiency of 98.5%. Collected dry material flows through a rotary airlock to transfer the material out of the collector into a hammermill metering bin. A portion of the dried material is also delivered into a wood fuels metering bin. The bin delivers the wood on demand from the control system with a live bottom driver. The bin is fully enclosed. A rotary airlock transfers the fuel from the fuel bin into a wood fuel blower. The fuel is then air conveyed and delivered to the burner.

The material from Cyclone #1 and processed in the hammermill is then transferred to Cyclone #2. Material collected in Cyclone #2 is discharged to a fabric filter and is then returned back to Cyclone #2 and included in the final product. Overfeed material is collected from the production process and is collected in Cyclone #3. Material collected in Cyclone #3 is discharged into a screw conveyor which returns the collected material to the production process.

The collected material is sent to a surge bin for the pellet mills where the wood particles are compressed into fuel pellets. The fuel pellets are then cooled, screened and conveyed to a bagging unit.

1.1 Equipment List

Included in Appendix B is a process flow diagram and plot plan which identifies all equipment that is requested for construction. Included in Appendix C are the PTC application forms which describe in detail each emission unit that is requested for construction. The manufacturer, model number and serial number for some emission units have not been determined at this time. NIEL intends to bid out the various types of equipment. After the manufacturers are selected the manufacturer, model number and serial number will be made available to Department representatives upon request.

2.0 REGULATORY APPLICABILITY

A review of state and local air quality regulations is provided in Table 2-1. Each regulation is described in the following sections. Included in Appendix C is the completed federal regulatory applicability PTC form.

Table 2-1 Regulatory Applicability Summary

	Program Description	Regulatory Citation	Applicable
2.1	National Ambient Air Quality Standards (NAAQS)- (dispersion modeling)	40 CFR Part 50	No
2.2	Title V Operating Permit	40 CFR Part 70	No
2.3	Air Pollutants (NESHAPs)	40 CFR Parts 61, 63	No
2.4	New Source Review (NSR)	40 CFR Part 52	No
2.5	New Source Performance Standards (NSPS)	40 CFR Part 60	No
2.6	Acid Rain Requirements	40 CFR Parts 72–78	No
2.7	Risk Management Programs For Chemical Accidental Release Prevention	40 CFR Part 68	No
2.8.	State Rules		
2.8.1	Certification of Documents	IDAPA 58.01.01.123	Yes
2.8.2	Excess Emissions	IDAPA 58.01.01.130-136	Yes
2.8.3	Demonstration of Preconstruction Compliance with Toxic Standards	IDAPA 58.01.01.210	Yes
2.8.4	Ambient Air Quality Standards for Specific Air Pollutants	IDAPA 58.01.01.577	Yes
2.8.5	Toxic Air Pollutants	IDAPA 58.01.01.585 and 586	Yes
2.8.6	Open Burning	IDAPA 58.01.01.600-616	Yes
2.8.7	Visible Emissions	IDAPA 58.01.01.625	Yes
2.8.8	Rules for Control of Fugitive Dust	IDAPA 58.01.01.650	Yes
2.8.9	Fuel Burning Equipment	IDAPA 58.01.01.676	Yes

2.8.10	Particulate Matter	IDAPA 58.01.01.701	Yes
2.8.11	Odors	IDAPA 58.01.01.775-776	Yes

2.1 National Ambient Air Quality Standards (NAAQS)

Primary National Ambient Air Quality Standards (NAAQS) are identified in 40 CFR Part 50 and define levels of air quality, which the United States Environmental Protection Agency (USEPA) deems necessary to protect the public health. Secondary NAAQS define levels of air quality, which the USEPA judges necessary to protect public welfare from any known, or anticipated adverse effects of a pollutant. Examples of public welfare include protecting wildlife, buildings, national monuments, vegetation, visibility, and property values from degradation due to excessive emissions of criteria pollutants.

Specific standards for the following pollutants have been promulgated by USEPA: PM10, SO2, NOx, CO, ozone, and lead. The NIEL facility will emit PM, PM10, SO2, NOx, CO, and VOCs, a precursor to ozone. The facility is a minor source with respect to PSD and Title V as it will not exceed any major source thresholds.

2.2 Title V (Part 70) Operating Permit

Title V of the Clean Air Act (CAA) created the federal operating permit program. These permitting requirements are codified in 40 CFR Part 70. These permits are required for major sources with a PTE (considering federally enforceable limitations) greater than 100 tpy for any criteria pollutant, 25 tpy for all hazardous air pollutants (HAPs) in aggregate, or 10 tpy of any single HAP. NIEL will qualify as a minor source and will be exempt from a Title V operating permit.

2.3 National Emission Standards for Hazardous Air Pollutants (NESHAPs)

Two sets of National Emissions Standards for Hazardous Air Pollutants (NESHAPs) may potentially apply to the NIEL Caldwell facility. The first NESHAP regulations were developed under the auspices of the original CAA. These standards are codified in 40 CFR Part 61, and address a limited number of pollutants and industries. 40 CFR Part 61 regulations do not apply to this planned facility.

Newer regulations are codified in 40 CFR Part 63 under the authority of the 1990 Clean Air Act Amendments (CAAA). These standards regulate HAP emissions from specific source categories and typically affect only major sources of HAPs. Part 63 regulations are frequently called Maximum Achievable Control Technology (MACT) standards. Major HAP sources have the PTE 10 tpy or more of any single HAP or 25 tpy or more of all combined HAP emissions. At the NIEL facility, potential emissions of individual HAPs will be less than 10 tpy and combined HAP emissions will be less than 25 tpy. Therefore, the facility is not subject to 40 CFR Part 63.

2.4 New Source Review (NSR) Requirements

NIEL is located in an attainment area for all criteria pollutants. Therefore, the prevention of significant deterioration (PSD) regulations codified in 40 CFR Part 52 could potentially apply to the proposed facility. The PSD rule applies to: (1) a new major source that has the potential to emit 100 tons per year or more for any criteria pollutant for a facility that is one of the 28 industrial source categories listed in 40 CFR § 52.21(b)(1)(i)(a); or (2) a new major source that has the potential to emit 250 tons per year or more if the facility is not on the list of industrial source categories; or (3) a modification to an existing major source that results in a net emission increase greater than a PSD significant emission rate as specified in 40 CFR § 52.21 (b)(23)(i); or (4) a modification to an existing minor source that is major in itself. The facility's PTE does not exceed the major source threshold for any criteria pollutants. Therefore, NIEL is not subject to PSD regulations.

2.5 New Source Performance Standards (NSPS)

New Source Performance Standards (NSPS) in 40 CFR Part 60 are applicable to new, modified, or reconstructed stationary sources that meet or exceed specified applicability thresholds. The new equipment proposed for this are not subject to any NSPS regulations.

2.6 Acid Rain Requirements

The acid rain requirements codified in 40 CFR Parts 72-78 apply only to utilities and other facilities that combust fossil fuel and generate electricity for wholesale or retail sale. The proposed facility will not produce electrical power for sale. Therefore, the facility is not subject to the acid rain provisions and will not require an acid rain permit.

2.7 Risk Management Programs for Chemical Accidental Release Prevention

The facility is not subject to the Chemical Accidental Release Prevention Program and will not be required to develop a Risk Management Plan (RMP). Facilities that produce, process, store, or use any regulated toxic or flammable substance in excess of the thresholds listed in 40 CFR Part 68 must develop a RMP. The facility does not store any regulated toxic or flammable substances in excess of the applicable thresholds. A RMP is not necessary for this facility.

2.8 State Rules

The Idaho Administrative Procedure Act (IDAPA) promulgates several emissions regulations that apply to NIEL in addition to those listed above.

2.8.1 Certification of Documents

IDAPA 58.01.01.123 requires all documents including application forms for permits to construct, records, and monitoring reports submitted to the Department shall contain a certification by a responsible official. NIEL will comply with this requirement and the appropriate certifications by a responsible official are being submitted with this application.

2.8.2 Excess Emissions

IDAPA 58.01.01.130-136 establishes procedures and requirements to be implemented in all excess emissions events. NIEL will comply with the procedures and requirements outlined in Section 131-136 and submit the necessary information and reports to DEQ related to excess emissions due to startup, shutdown, scheduled maintenance, safety measures, upsets and breakdowns.

2.8.3 Demonstration of Preconstruction Compliance with Toxic Standards

IDAPA 58.01.01.210 establishes requirements for preconstruction compliance with toxic standards. NIEL will comply with this rule by identifying the toxic pollutants emitted from the proposed process. NIEL has also estimated and modeled the ambient concentrations for those toxics which exceeded their respective emission screening levels. A complete modeling report is included in Appendix D which documents how NIEL demonstrates preconstruction compliance with toxic air quality preconstruction standards.

2.8.4 Ambient Air Quality Standards for Specific Air Pollutants

IDAPA 58.01.01.577 establishes ambient air quality standards for specific air pollutants including PM-10, Sulfur Dioxide, Ozone, Nitrogen Oxide, Carbon Monoxide, Fluorides and Lead. NIEL has demonstrated compliance with these standards and documentation of compliance is included in Appendix D.

2.8.5 Toxic Air Pollutants

IDAPA 58.01.01.585 and 586 establishes requirements for compliance with toxic air pollutants. NIEL demonstrates compliance with the standards in the modeling report included in Appendix D.

2.8.6 Open Burning

IDAPA 58.01.01.600 and 616 establishes requirements for open burning. NIEL does not expect to conduct open burning at the facility however will comply with the requirements under Section 600-616 if any allowable burning is to be conducted at the facility.

2.8.7 Visible Emission Limitation

IDAPA 58.01.01.625 restricts discharge of air pollutants into the atmosphere which is greater than 20% opacity for a period or periods aggregating more than three (3) minutes in any sixty (60) minute period. NIEL will comply with this rule by conducting monthly facility-wide inspections of potential sources of visible emissions, during daylight hours and under normal operating conditions. Potential sources of visible emissions include the Dryer Cyclone #1, Cyclone #2/ Filter Baghouse, and Cyclone #3. The inspection will consist of a see/no see evaluation for each potential source. If any visible emissions are observed NIEL will take corrective action or perform a Method 9 opacity test in accordance with the procedures outlined in IDAPA 58.01.01.625. NIEL will keep records onsite documenting the monthly visible emission inspection and Method 9 test conducted.

2.8.8 Rules for Control of Fugitive Dust

IDAPA 58.01.01.650 requires that all reasonable precautions be taken to prevent the generation of fugitive dust. NIEL will comply with fugitive particulate matter regulations. Potential sources of fugitive dust emissions include the sawdust storage area and vehicle traffic on haul roads. Fugitive emissions from storage piles are expected to be minimal due to the natural moisture content in the raw wood. All roads are gravel and are watered four or more times a day to prevent fugitive dust emissions.

2.8.9 Fuel Burning Equipment – Particulate Matter

IDAPA 58.01.01.677 restricts any fuel burning source of greater than 10 MMBtu to limit the PM released from combustion to 0.08 gr/dscf for wood fuel. The rotary dryer burner will comply with this requirement by controlling emissions with the dryer Cyclone #1 as shown below.

Table 2.8-1
Grain Loading Emissions – Wood burner/dryer

Source	PM Emission Rate (lb/hr)	Dryer Cyclone Flow Rate (dscf/m)	Grain Loading (grain/dscf)	Grain Loading Standard (grain/dscf)	Meet Grain Loading Standard?
Rotary Dryer/ Burner	11.31	21,657	0.06	0.08	Yes

2.8.10 Particulate Matter

IDAPA 58.01.01.701 promulgates restrictions on PM for the entire facility based on process weight. NIEL will comply with this rule by using cyclone, baghouse collectors and dust control practices to limit the facility's emission.

Table 2.8-2
Process Weight Calculations

Source Description	Process Weight, PW (lb/hr)	Process Weight Rate Limitations - E (lb/hr)	PM-10 Emissions - Actual (lb/hr)	In Compliance? (Y/N)
Drum Dryer Cyclone			11.31	
Cyclone #2/ Baghouse			0.11	
Cyclone #3			0.94	
Fugitive Emissions			0.10	
Total Facility Wide	24,600	**13.77**	**12.46**	**Y**

PW = 12.3 wet ton/hr x 2000 lb/ton = 24,600 lb/hr
$E = 1.1(PW)^{0.25}$, for PW greater than 9,250 lb/hr.
E = Emission Limit

2.8.11 Odors

IDAPA 58.01.01.775-776 requires no emissions of odorous gases, liquids, or solids to the atmosphere in such quantities as to cause air pollution. NIEL will comply with this requirement by keeping records of all odor complaints received and will take appropriate action for each complaint which has merit.

3.0 EMISSION SUMMARY

A summary of the potential emissions for the facility is presented in Table 3-1. Emission calculations have been completed for: PM10, SO_2, NO_x, CO and VOC. Detailed emission calculations are included in Appendix A.

Table 3-1. North Idaho Energy Logs PTE

PM_{10} (tpy)	SO_2 (tpy)	NO_x (tpy)	CO (tpy)	VOC (tpy)
54.59	3.29	64.39	78.84	31.54

3.1 Emission Factors

Emission estimates for the rotary dryer were calculated using emission factors from AP-42 Section 1.6, Wood Residue Combustion in Boilers and AP-42 Section 10.6.2 Particleboard Manufacturing. The emission factors for wood combustion and wood fired dryers are summarized in the emission calculation Tables 1 and Table 2 below. Table 3 compares the emission factors for wood combustion and wood fired dryers. Potential emission estimates were based on the emission factor that resulted in the highest hourly emission rate.

3.2 Potential Emission Estimates

Emission factors for wood combustion are expressed in pounds of pollutant per million Btu input. The operating parameters and potential emissions for the wood fired burner are shown in Table 1. An example calculation using the CO emission factor of 0.60 lb/MMBtu and the maximum burner input of 30.0 MMBtu/hr is shown below. Table 4 summarizes the wood dryer criteria emission calculations and Table 5 summarizes the wood dryer toxic air pollutant emissions.

CO emissions = (0.60 lb CO/MMBtu) (30.0 MMBtu/hr) = **18.0 lb CO/hr**

$$= \frac{(18.0 \text{ lb CO/hr})\ (8{,}760 \text{ hr/yr})}{2{,}000 \text{ lb/ton}} = \textbf{78.84 tons CO/yr}$$

Emission factors for wood fired dryers are expressed in pounds of pollutant per oven dry ton (ODT) of product. The operating parameters and potential emissions for the wood fired dryer are shown in Table 2. An example calculation using the VOC emission factor of 0.90 lb/ODT and the potential production rate of 8.0 ODT/hr is shown below.

VOC emissions = (0.90 lb VOC/ODT) (8.0 ODT/hr) = **7.2 lb VOC/hr**

$$= \frac{(7.2 \text{ lb VOC/hr})\ (8{,}760 \text{ hr/yr})}{2{,}000 \text{ lb/ton}} = \textbf{31.54 tons VOC/yr}$$

Table 6 summarizes the PM/PM-10 emissions from the facility's system dust collection baghouse and cyclones. Emissions for each cyclone were calculated using grainloading emission rates and emissions from the system baghouse were estimated using the emission factors in the Idaho DEQ Emission Factor Guide for the Wood Industry of 0.001 gr/dscf air for PM and PM-10. For the system dust collector baghouse with an air flow of 12,990 dscf/min the PM/PM-10 emission rate is 0.11 lb/hr as shown below.

$$\text{PM/PM-10 emissions} = \frac{(\text{Air flow dscf/min})\ (\text{Grain Loading gr/dscf})\ (60 \text{ min/hr})}{7{,}000 \text{ gr/lb}}$$

$$= \frac{(12{,}990 \text{ dscf/min})\ (0.001 \text{ gr/dscf})\ (60 \text{ min/hr})}{7{,}000 \text{ gr/lb}} = \textbf{0.11 lb PM/PM-10/hr}$$

APPENDIX A

EMISSION CALCULATIONS

TABLE 1
WOOD COMBUSTION POTENTIAL EMISSIONS
North Idaho Energy Logs, Moyie Springs, Idaho

Wood Burner Operating Paramters	
Required Heat Input (MM Btu/hr) =	30.00
Fuel Heat Value at 10% H_2O (Btu/lb) =	7,793
Potential Fuel Use (tons/hr) =	1.925
Potential Operating Hours (hr/yr) =	8,760
Potential Fuel Use (tons/yr) =	16,861.3

Criteria Pollutants	Emission Factor lb/MMBtu	Potential Emissions lb/hr	Potential Emissions tons/yr
PM-10	0.377	11.310	49.538
SO2 (Dry Wood, No Control)	0.025	0.750	3.285
NOx (Dry Wood, No Control)	0.49	14.700	64.386
CO (Dry Wood, No Control)	0.60	18.000	78.840
VOC	0.017	0.510	2.234
Lead	4.80E-05	1.440E-03	6.307E-03
Non-Criteria			
PM	0.40	12.000	52.560
Beryllium	1.10E-06	3.300E-05	1.445E-04
Mercury	3.50E-06	1.050E-04	4.599E-04
TAPS Non-Carcigenic			
Acetone	1.90E-04	5.700E-03	2.497E-02
Acrolein	4.00E-03	1.200E-01	5.256E-01
Antimony	7.90E-06	2.370E-04	1.038E-03
Barium	1.70E-04	5.100E-03	2.234E-02
2-Butanone (MEK)	5.40E-06	1.620E-04	7.096E-04
Chlorine	7.90E-04	2.370E-02	1.038E-01
Chlorobenzene	3.30E-05	9.900E-04	4.336E-03
2-Chlorophenol	2.40E-08	7.200E-07	3.154E-06
Chromium	2.10E-05	6.300E-04	2.759E-03
Cobalt	6.50E-06	1.950E-04	8.541E-04
Copper	4.90E-05	1.470E-03	6.439E-03
Crotonaldehyde	9.90E-06	2.970E-04	1.301E-03
1,2-Dichloropropane	3.30E-05	9.900E-04	4.336E-03
Ethylbenzene	3.10E-05	9.300E-04	4.073E-03
Fluorene	3.40E-06	1.020E-04	4.468E-04
Hydrogen Chloride	1.90E-02	5.700E-01	2.497E+00
Iron	9.90E-04	2.970E-02	1.301E-01
Manganese	1.60E-03	4.800E-02	2.102E-01
Mercury	3.50E-06	1.050E-04	4.599E-04
Methyl Chloroform (1,1,1 Trichloroethane)	3.10E-05	9.300E-04	4.073E-03
Molybdenum	2.10E-06	6.300E-05	2.759E-04
Napthalene	9.70E-05	2.910E-03	1.275E-02
Pentachlorophenol	5.10E-08	1.530E-06	6.701E-06
Phenol	5.10E-05	1.530E-03	6.701E-03
Phosphorous	2.70E-05	8.100E-04	3.548E-03
Propionaldehyde	6.10E-05	1.830E-03	8.015E-03
Selenium	2.80E-06	8.400E-05	3.679E-04
Silver	1.70E-03	5.100E-02	2.234E-01
Tin	2.30E-05	6.900E-04	3.022E-03
Toluene	9.20E-04	2.760E-02	1.209E-01
Vanadium	9.80E-07	2.940E-05	1.288E-04
o-Xylene	2.50E-05	7.500E-04	3.285E-03
Yttrium	3.00E-07	9.000E-06	3.942E-05
Zinc	4.20E-04	1.260E-02	5.519E-02

TABLE 2
WOOD FIRED DRYER POTENTIAL EMISSIONS
North Idaho Energy Logs, Moyie Springs, Idaho

Dryer Process Parameters	
Throughput (wet tons/hr) =	12.3
Moisture content (%) =	40%
Dry Furnish @ 8% Moisture (ODT/hr) =	8.00
Exhaust Gas Flow Rate (dscfm) =	21,657
Exhaust Gas Flow Rate (acfm) =	39,500
Exhaust Gas Temperature (°F) =	120.0

Criteria Pollutants	Emission Factors lb/ODT[1,2]	Emissions lb/hr	Emissions tons/yr
PM-10	1.203	9.624	42.153
SO2	ND	----	----
NOx	0.58	4.640	20.323
CO	0.68	5.440	23.827
VOC	0.9	7.200	31.536
Lead	ND		
Non-Criteria			
PM	3.6	28.800	126.144
TAPS Non-Carcigenic			
Acetone	8.40E-02	6.720E-01	2.943
Acrolein	4.50E-03	3.600E-02	1.577E-01
Carbon Disulfide	1.80E-05	1.440E-04	6.307E-04
Cumene	6.90E-05	5.520E-04	2.418E-03
Dibutyl phthalate	2.30E-05	1.840E-04	8.059E-04
Ethylbenzene	3.80E-06	3.040E-05	1.332E-04
Hexane	2.60E-05	2.080E-04	9.110E-04
Hydroquinone	6.00E-05	4.800E-04	2.102E-03
Methanol*	7.30E-02	5.840E-01	2.558
Methyl Chloroform (1,1,1 Trichloroethane)	1.20E-05	9.600E-05	4.205E-04
Methyl ethyl ketone	0.0049	3.920E-02	1.717E-01
Methyl isobutyl ketone	0.0024	1.920E-02	8.410E-02
Phenol	6.60E-03	5.280E-02	2.313E-01
Propionaldehyde	3.20E-03	2.560E-02	1.121E-01
Styrene	1.20E-04	9.600E-04	4.205E-03
Toluene	2.10E-03	1.680E-02	7.358E-02
1,2,4-Trichlorobenzene	BDL		
Valeraldehyde	1.60E-03	1.280E-02	5.606E-02
m-,p-Xylene	5.50E-04	4.400E-03	1.927E-02
TAPS Carcigenic			
Acetaldehyde	1.30E-02	1.040E-01	4.555E-01
Benzene	9.90E-04	7.920E-03	3.469E-02
Bis(2-ethylhexyl)phthalate	3.20E-04	2.560E-03	1.121E-02
Carbon Tetrachloride	1.20E-05	9.600E-05	4.205E-04
1,2-Dichloroethane	BDL		
Formaldehyde	2.50E-02	2.000E-01	8.760E-01
Methylene chloride	6.30E-04	5.040E-03	2.208E-02

[1] PM-10 Emission Factor From Idaho DEQ Approved Test conducted 3/17/04 Coeur d'Alene Fiber Fuels, Inc.

[2] Emission factors are pounds of pollutant per oven-dried ton of wood material out of dryer

TABLE 3
Emission Factors
Comparison of Wood Combustion to Wood Fired Dryer Emission Rates and Natural Gas Combustion to Natural Gas Fired Dryer Emission Rates
North Idaho Energy Logs, Moyie Springs, Idaho

Wood Burner Firing Rate (MMBtu/hr)	**30.00**
Wood Fired Dryer Production Rate (ODT/hr)	**8.00**

Wood Combustion			Wood Fired Dryer			Emission Rates		
Criteria Pollutants	lb/MMBtu	Source	Criteria Pollutants	lb/ODT	Source	Burner lb/hr	Dryer lb/hr	Dryer Higher?
PM-10	0.377	AP-42 Tbl 1.6-1 (3/02)	PM-10 (Filerable + Condensible)	1.203	AP-42 Tbl 10.6.2-1 (2/02)	11.31	9.62	Burner
SO2	0.025					0.75	0.00	Burner
NOx	0.49	AP-42 Tbl 1.6-2 (3/02)	NOx	0.58	AP-42 Tbl 10.6.2-2 (2/02)	14.70	4.64	Burner
CO	0.6	AP-42 Tbl 1.6-2 (3/02)	CO	0.68	AP-42 Tbl 10.6.2-2 (2/02)	18.00	5.44	Burner
VOC	0.017	AP-42 Tbl 1.6-3 (3/02)	VOC	0.9	AP-42 Tbl 10.6.2-3 (2/02)	0.51	7.20	Dryer
Non-Criteria			Non-Criteria					
PM	0.56	AP-42 Tbl 1.6-1 (3/02)	PM	3.6	AP-42 Tbl 1.6-1 (3/02)	16.80	28.80	Dryer
TAPS Non-Carcigenic			TAPS Non-Carcigenic					
Acetone	1.90E-04	AP-42 Tbl 1.6-3 (3/02)	Acetone	8.40E-02	AP-42 Tbl 10.6.2-3 (2/02)	5.70E-03	6.72E-01	Dryer
Acrolein	4.00E-03	AP-42 Tbl 1.6-3 (3/02)	Acrolein	4.50E-03	AP-42 Tbl 10.6.2-3 (2/02)	1.20E-01	3.60E-02	Burner
			Carbon Disulfide	1.80E-05	AP-42 Tbl 10.6.2-3 (2/02)	0.00E+00	1.44E-04	Dryer
			Cumene	0.000069	AP-42 Tbl 10.6.2-3 (2/02)	0.00E+00	5.52E-04	Dryer
			Dibutyl phthalate	0.000023	AP-42 Tbl 10.6.2-3 (2/02)	0.00E+00	1.84E-04	Dryer
Ethylbenzene	3.10E-05	AP-42 Tbl 1.6-3 (3/02)	Ethylbenzene	3.80E-06	AP-42 Tbl 10.6.2-3 (2/02)	9.30E-04	3.04E-05	Burner
Hexane			Hexane	2.60E-05	AP-42 Tbl 10.6.2-3 (2/02)	0.00E+00	2.08E-04	Dryer
			Hydroquinone	6.00E-05	AP-42 Tbl 10.6.2-3 (2/02)	0.00E+00	4.80E-04	Dryer
			Methanol (Nat Gas)	7.30E-02	AP-42 Tbl 10.6.2-3 (2/02)	0.00E+00	5.84E-01	Dryer
Methyl Chloroform (1,1,1 Trichloroethane)	3.10E-05	AP-42 Tbl 1.6-3 (3/02)	Methyl Chloroform (1,1,1 Trichloroethane)	1.20E-05	AP-42 Tbl 10.6.2-3 (2/02)	9.30E-04	9.60E-05	Burner
			Methyl ethyl ketone	0.0049	AP-42 Tbl 10.6.2-3 (2/02)	0.00E+00	3.92E-02	Dryer
			Methyl isobutyl ketone	0.0024	AP-42 Tbl 10.6.2-3 (2/02)	0.00E+00	1.92E-02	Dryer
Phenol	5.10E-05	AP-42 Tbl 1.6-3 (3/02)	Phenol	6.60E-03	AP-42 Tbl 10.6.2-3 (2/02)	1.53E-03	5.28E-02	Dryer
Propionaldehyde	6.10E-05	AP-42 Tbl 1.6-3 (3/02)	Propionaldehyde	3.20E-03	AP-42 Tbl 10.6.2-3 (2/02)	1.83E-03	2.56E-02	Dryer
Styrene	1.90E-03		Styrene	1.20E-04	AP-42 Tbl 10.6.2-3 (2/02)	5.70E-02	9.60E-04	Burner
Toluene	9.20E-04	AP-42 Tbl 1.6-3 (3/02)	Toluene	2.10E-03	AP-42 Tbl 10.6.2-3 (2/02)	2.76E-02	1.68E-02	Burner
			1,2,4-Trichlorobenzene	BDL	AP-42 Tbl 10.6.2-3 (2/02)	0.00E+00	0.00E+00	Burner
			Valeraldehyde	1.60E-03	AP-42 Tbl 10.6.2-3 (2/02)	0.00E+00	1.28E-02	Dryer
			m-,p-Xylene	5.50E-04	AP-42 Tbl 10.6.2-3 (2/02)	0.00E+00	4.40E-03	Dryer
TAPS Carcigenic			TAPS Carcigenic					
Acetaldehyde	8.30E-04	AP-42 Tbl 1.6-3 (3/02)	Acetaldehyde	1.30E-02	AP-42 Tbl 10.6.2-3 (2/02)	2.49E-02	1.04E-01	Dryer
Benzene	4.20E-03	AP-42 Tbl 1.6-3 (3/02)	Benzene	9.90E-04	AP-42 Tbl 10.6.2-3 (2/02)	1.26E-01	7.92E-03	Burner
Bis(2-ethylhexyl)phthalate	4.70E-08	AP-42 Tbl 1.6-3 (3/02)	Bis(2-ethylhexyl)phthalate	3.20E-04	AP-42 Tbl 10.6.2-3 (2/02)	1.41E-06	2.56E-03	Dryer
Carbon Tetrachloride	4.50E-05	AP-42 Tbl 1.6-3 (3/02)	Carbon Tetrachloride	1.20E-05	AP-42 Tbl 10.6.2-3 (2/02)	1.35E-03	9.60E-05	Burner
1,2-Dichloroethane	2.90E-05	AP-42 Tbl 1.6-3 (3/02)	1,2-Dichloroethane	BDL	AP-42 Tbl 10.6.2-3 (2/02)	8.70E-04	0.00E+00	Burner
Formaldehyde	4.40E-03	AP-42 Tbl 1.6-3 (3/02)	Formaldehyde	2.50E-02	AP-42 Tbl 10.6.2-3 (2/02)	1.32E-01	2.00E-01	Dryer
	3.30E-05	AP-42 Tbl 1.6-4 (3/02)	Methylene chloride	6.30E-04	AP-42 Tbl 10.6.2-3 (2/02)	9.90E-04	5.04E-03	Dryer

TABLE 4
Dryer Operating Parameters
and
Dryer Criteria Pollutant Emission Estimates
North Idaho Energy Logs, Moyie Springs, Idaho

Wood Burner Operating Paramters	
Required Heat Input (MM Btu/hr) =	30.00
Fuel Heat Value at 10% H_2O (Btu/lb) =	7,793.0
Potential Fuel Use (tons/hr) =	1.925
Potential Fuel Use (tons/yr) =	16,861.3
Potential Operating Hours (hr/yr) =	8,760

Dryer Process Parameters	
Throughput (wet tons/hr) =	12.3
Moisture content (%) =	40%
Dry Furnish @ 8% Moisture (ODT/hr) =	8.00
Exhaust Gas Flow Rate (dscfm) =	21,657
Exhaust Gas Flow Rate (acfm) =	39,500
Exhaust Gas Temperature (°F) =	120.0

Dryer Process Emissions			
		Emissions	
Pollutant	Emission Factor	(lb/hr)	(T/yr)
PM	$1.10(PW)^{0.25}$	13.77	60.30

PM Emission Factor From IDAPA 58.01.01.701.b Where PW = Process Weight In lb/hr

Criteria	Emission		Potential Emissions	
Pollutants	Factors	Units	(lb/hr)	(T/yr)
PM-10	0.377	lb/MMBtu	11.310	49.538
SO2	0.025	lb/MMBtu	0.750	3.285
NOx	0.49	lb/MMBtu	14.700	64.386
CO	0.60	lb/MMBtu	18.000	78.840
VOC	0.90	lb/ODT	7.202	31.545
Lead	0.000048	lb/MMBtu	1.44E-03	6.31E-03
Non-Criteria Pollutants with a Significant Threshold				
PM*	$1.10(PW)^{0.25}$	lb/hr	13.768	60.303
Beryllium	1.10E-06	lb/MMBtu	3.30E-05	1.45E-04
Mercury	3.50E-06	lb/MMBtu	1.05E-04	4.60E-04

PM Emission Factor From IDAPA 58.01.01.701.b Where PW = Process Weight In lb/hr

TABLE 5
Dryer Toxic Air Pollutant Information
North Idaho Energy Logs, Moyie Springs, Idaho

Non-Carcinogenic Toxic Aiir Pollutants	Emission Fators		Wood Potential Emissions (lb/hr)	NG Current Permitted Emissions (lb/hr)	Increase In Emissions (lb/hr)	Screening Level (EL) (lb/hr)	Modeling Required? Y or N
	Factor	Units					
Acetone	8.40E-02	lb/ODT	6.72E-01		6.72E-01	119	NO
Acrolein	4.00E-03	lb/MMBtu	1.20E-01		1.20E-01	0.017	YES
Antimony	7.90E-06	lb/MMBtu	2.37E-04		2.37E-04	0.033	NO
Barium	1.70E-04	lb/MMBtu	5.10E-03		5.10E-03	0.033	NO
2-Butanone (MEK)	5.40E-06	lb/MMBtu	1.62E-04		1.62E-04	39.3	NO
Carbon Disulfide	1.80E-05	lb/ODT	1.44E-04		1.44E-04	2	NO
Chlorine	7.90E-04	lb/MMBtu	2.37E-02		2.37E-02	0.2	NO
Chlorobenzene	3.30E-05	lb/MMBtu	9.90E-04		9.90E-04	23.3	NO
2-Chlorophenol	2.40E-08	lb/MMBtu	7.20E-07		7.20E-07	0.033	NO
Chromium	2.10E-05	lb/MMBtu	6.30E-04		6.30E-04	0.033	NO
Cobalt	6.50E-06	lb/MMBtu	1.95E-04		1.95E-04	0.0033	NO
Copper	4.90E-05	lb/MMBtu	1.47E-03		1.47E-03	0.013	NO
Crotonaldehyde	9.90E-06	lb/MMBtu	2.97E-04		2.97E-04	0.38	NO
Cumene	6.90E-05	lb/ODT	5.52E-04		5.52E-04	16.3	NO
Dibutyl Phthalate	2.30E-05	lb/ODT	1.84E-04		1.84E-04	0.333	NO
1,2-Dichloropropane	3.30E-05	lb/MMBtu	9.90E-04		9.90E-04	23.133	NO
Ethylbenzene	3.10E-05	lb/MMBtu	9.30E-04		9.30E-04	29	NO
Fluorene	3.40E-06	lb/MMBtu	1.02E-04		1.02E-04	0.133	NO
Hexane	2.60E-05	lb/ODT	2.08E-04		2.08E-04	12	NO
Hydrogen Chloride	1.90E-02	lb/MMBtu	5.70E-01		5.70E-01	0.05	YES
Hydroquinone	6.00E-05	lb/ODT	4.80E-04		4.80E-04	0.133	NO
Iron	9.90E-04	lb/MMBtu	2.97E-02		2.97E-02	0.333	NO
Manganese	1.60E-03	lb/MMBtu	4.80E-02		4.80E-02	0.067	NO
Mercury	3.50E-06	lb/MMBtu	1.05E-04		1.05E-04	0.001	NO
Methanol	1.40E-02	lb/ODT	1.12E-01	5.84E-01	-4.72E-01	17.3	NO
Methyl Chloroform (1,1,1 Trichloroethane)	3.10E-05	lb/MMBtu	9.30E-04		9.30E-04	127	NO
Methyl Ethyl Ketone	4.90E-03	lb/ODT	3.92E-02		3.92E-02	39.3	NO
Methyl Isobutyl Ketone	2.40E-03	lb/ODT	1.92E-02		1.92E-02	0.01	YES
Molybdenum	2.10E-06	lb/MMBtu	6.30E-05		6.30E-05	0.33	NO
Napthalene	9.70E-05	lb/MMBtu	2.91E-03		2.91E-03	3.33	NO
Pentachlorophenol	5.10E-08	lb/MMBtu	1.53E-06		1.53E-06	0.033	NO
Phenol	6.60E-03	lb/ODT	5.28E-02		5.28E-02	1.27	NO
Phosphorous	2.70E-05	lb/MMBtu	8.10E-04		8.10E-04	0.007	NO
Propionaldehyde	3.20E-03	lb/ODT	2.56E-02		2.56E-02	0.0287	NO
Selenium	2.80E-06	lb/MMBtu	8.40E-05		8.40E-05	0.013	NO
Silver	1.70E-03	lb/MMBtu	5.10E-02		5.10E-02	0.001	YES
Styrene	1.90E-03	lb/MMBtu	5.70E-02		5.70E-02	6.67	NO
Tin	2.30E-05	lb/MMBtu	6.90E-04		6.90E-04	0.007	NO
Toluene	9.20E-04	lb/MMBtu	2.76E-02		2.76E-02	25	NO
Valeraldehyde	1.60E-03	lb/ODT	1.28E-02		1.28E-02	11.7	NO
Vanadium	9.80E-07	lb/MMBtu	2.94E-05		2.94E-05	0.003	NO
m-,p-Xylene	5.50E-04	lb/ODT	4.40E-03		4.40E-03	29	NO
Yttrium	3.00E-07	lb/MMBtu	9.00E-06		9.00E-06	0.067	NO
Zinc	4.20E-04	lb/MMBtu	1.26E-02		1.26E-02	0.067	NO

TABLE 5 (cont.)
Dryer Toxic Air Pollutant Information
North Idaho Energy Logs, Moyie Springs, Idaho

Carcinogenic Toxic Air Pollutants	Emission Fators		Wood Potential Emissions (lb/hr)	NG Current Permitted Emissions (lb/hr)	Increase In Emissions (lb/hr)	Screening Level (EL) (lb/hr)	Modeling Required? Y or N
	Factor	Units					
Acetaldehyde	1.30E-02	lb/ODT	1.04E-01		1.04E-01	3.00E-03	YES
Arsenic	2.20E-05	lb/MMBtu	6.60E-04		6.60E-04	1.50E-06	YES
Benzene	4.20E-03	lb/MMBtu	1.26E-01		1.26E-01	8.00E-04	YES
Benzo(a)pyrene	2.60E-06	lb/MMBtu	7.80E-05		7.80E-05	2.00E-06	YES
Beryllium	1.10E-06	lb/MMBtu	3.30E-05		3.30E-05	2.80E-05	YES
Bis(2-ethylhexyl)phthalate	3.20E-04	lb/ODT	2.56E-03		2.56E-03	2.80E-02	NO
Cadmium	4.10E-06	lb/MMBtu	1.23E-04		1.23E-04	3.70E-06	YES
Carbon Tetrachloride	4.50E-05	lb/MMBtu	1.35E-03		1.35E-03	4.40E-04	YES
Chloroform	2.80E-05	lb/MMBtu	8.40E-04		8.40E-04	2.80E-04	YES
Chromium VI	3.50E-06	lb/MMBtu	1.05E-04		1.05E-04	5.60E-07	YES
1,2-Dichloroethane	2.90E-05	lb/MMBtu	8.70E-04		8.70E-04	2.50E-04	YES
Dichloromethane	2.90E-04	lb/MMBtu	8.70E-03		8.70E-03	1.60E-03	YES
Dioxins and Furans (TEQ)	2.32E-09	lb/MMBtu	6.95E-08		6.95E-08	1.50E-10	YES
Heptachlorodibenzo-p-dioxins (0.010)	2.00E-09	lb/MMBtu	6.00E-10		6.00E-10	N/A	N/A
Heptachlorodibenzo-p-furans (0.010)	2.40E-10	lb/MMBtu	7.20E-11		7.20E-11	N/A	N/A
Hexachlorodibenzo-p-dioxins (0.100)	1.29E-08	lb/MMBtu	3.87E-08		3.87E-08	N/A	N/A
Hexachlorodibenzo-p-Furans (0.100)	2.70E-10	lb/MMBtu	8.10E-10		8.10E-10	N/A	N/A
Octachlorodibenzo-p-dioxins (0.001)	1.10E-09	lb/MMBtu	3.30E-11		3.30E-11	N/A	N/A
Octachlorodibenzo-p-furans (0.001)	8.80E-11	lb/MMBtu	2.64E-12		2.64E-12	N/A	N/A
Pentachlorodibenzo-p-dioxins (0.500)	1.50E-09	lb/MMBtu	2.25E-08		2.25E-08	N/A	N/A
Pentachlorodibenzo-p-furans (0.500)	4.20E-10	lb/MMBtu	6.30E-09		6.30E-09	N/A	N/A
2,3,7,8-Tetrachlorodibenzo-p-dioxins (1.000)	8.60E-12	lb/MMBtu	2.58E-10		2.58E-10	N/A	N/A
2,3,7,8-Tetrachlorodibenzo-p-furans (0.100)	9.00E-11	lb/MMBtu	2.70E-10		2.70E-10	N/A	N/A
Formaldehyde	2.50E-02	lb/ODT	2.00E-01	6.94E-02	1.31E-01	5.10E-04	YES
Methyene Chloride	6.30E-04	lb/ODT	5.04E-03		5.04E-03	1.60E-03	YES
Nickel	3.30E-05	lb/MMBtu	9.90E-04		9.90E-04	2.70E-05	YES
Polyaromatic Hydrocarbons (PAH or POM)	2.94E-06	lb/MMBtu	8.81E-05		8.81E-05	2.00E-06	YES
Benzo(a)anthracene	6.50E-08	lb/MMBtu	1.95E-06		1.95E-06	N/A	N/A
Benzo(b)fluoranthene	1.00E-07	lb/MMBtu	3.00E-06		3.00E-06	N/A	N/A
Benzo(k)fluoranthene	3.60E-08	lb/MMBtu	1.08E-06		1.08E-06	N/A	N/A
Chrysene	3.80E-08	lb/MMBtu	1.14E-06		1.14E-06	N/A	N/A
Dibenzo(a,h)anthracene	9.10E-09	lb/MMBtu	2.73E-07		2.73E-07	N/A	N/A
Indeno(1,2,3-cd)pyrene	8.70E-08	lb/MMBtu	2.61E-06		2.61E-06	N/A	N/A
Benzo(a)pyrene	2.60E-06	lb/MMBtu	7.80E-05		7.80E-05	N/A	N/A
2,3,7,8-Tetrachlorodibenzo-p-dioxin	8.60E-12	lb/MMBtu	2.58E-10		2.58E-10	1.50E-10	YES
2,4,6-Trichlorophenol	2.20E-08	lb/MMBtu	6.60E-07		6.60E-07	1.20E-03	NO

(TEQ) Toxicity Equivalent Applied to Emission Rate

TABLE 6
Cyclone and Baghouse Operating Parameters
and
Particulate Emission Estimates
North Idaho Energy Logs, Moyie Springs, Idaho

Wood Dryer Cyclone #1 Exhaust Parameters		
	Actual Stack Gas Flow (acfm) =	39,500
	Standard Stack Gas Flow (dscfm) =	21,657
	Stack Gas Moisture (%) =	40%
	Stack Gas Temperature (°F) =	120

System Dust Collection Baghouse Exhaust Parameters		
	Actual Stack Gas Flow (acfm) =	15,250
	Standard Stack Gas Flow (dscfm) =	12,990
	Stack Gas Moisture (%) =	10%
	Stack Gas Temperature (°F) =	100

Cyclone #3 Exhaust Parameters		
	Actual Stack Gas Flow (acfm) =	8,850
	Standard Stack Gas Flow (dscfm) =	7,538
	Stack Gas Moisture (%) =	10%
	Stack Gas Temperature (°F) =	100

Dust Collection Baghouse and Cyclone Emissions					
	Standard Stack Gas Flow			PM10 Emissions	
Emission Source	Emission Factors		(dscfm)	(lb/hr)	(T/yr)
Wood Dryer Cyclone	0.061	grains/dscf	21,657	11.31	49.538
System Dust Collector	0.001	grains/dscf	12,990	0.11	0.488
Cyclone #3	0.0146	grains/dscf	7,538	0.94	4.132

Total PM10 (tpy) = 54.16

[1] PM and PM-10 Emission Factor From Idaho DEQ Emission Factor Guide for Wood Industry

TABLE 7

FRONT END LOADING/STOCKPILE DISTURBANCE EMISSIONS

Sawdust/ Raw Product

Drop Point Emissions	Emissions		
Pollutant	Lbs/hr	Gram/sec	Tons/yr
Total Particulate	0.00	0.00	0.02
PM_{10}	0.00	0.00	0.01

Throughput Rates		
Hourly	14.2	tons
Annual	124,317	tons

$PM=(k)*(0.0032)*((U/5)^1.3)/((M/2)^1.4)$ 13.2.4-3 Equation (1)

$PM_{10}=(k')*(0.0032)*((U/5)^1.3)/((M/2)^1.4)$ 13.2.4-3 Equation (1)

Where

k=	Particle size multiplier for PM	0.74	Page 13.2.4-4
k'=	Particle size multiplier for PM_{10}	0.35	Page 13.2.4-4
U=	Mean wind speed	9	DAQ Default
M=	Material moisture content	40	Natural moisture
n=	Number of drop points	5	One drop to receiving bin, 4 drops to stockpiles
			At least one disturbance for each stockpile at facility
PM=	7.67E-05 lbs/ton		
PM_{10}=	3.63E-05 lbs/ton		

AP-42 Fifth Edition Jan 95
Section 13 Miscellaneous Sources
13.2 Fugitive Dust Sources
13.2.4 Aggregate Handling and Storage Piles

TABLE 8
STOCKPILE WIND EROSION EMISSIONS

Active Pile Emissions	Controlled			Uncontrolled		
Pollutant	Lbs/hr	Gram/sec	Tons/yr	Lbs/hr	Gram/sec	Tons/yr
Total Particulate	0.20	0.03	0.89	0.68	0.09	2.96
PM_{10}	0.10	0.01	0.42	0.32	0.04	1.41

PM=	13.2	lb/acre/day	Table 8.19.1-1
PM_{10}=	6.3	lb/acre/day	Table 8.19.1-1
Pile Size	1.23	Acre	Assumes all piles active all the time[1]
Usage	365	Days/year	
	70%	Control Efficiency based on natural moisture of ~40%	

[1] By assuming that all piles are active at all times, the emissions from stockpile wind erosion are over-predicted.

AP-42 Fourth Edition Sept 91
This section was not included in the Fifth Edition
Section 8 Mineral Products Industry
8.19.1 Sand and gravel processing
Active storage piles

TABLE 9- North Idaho Energy Logs

Controlled PTE Emission Inventory

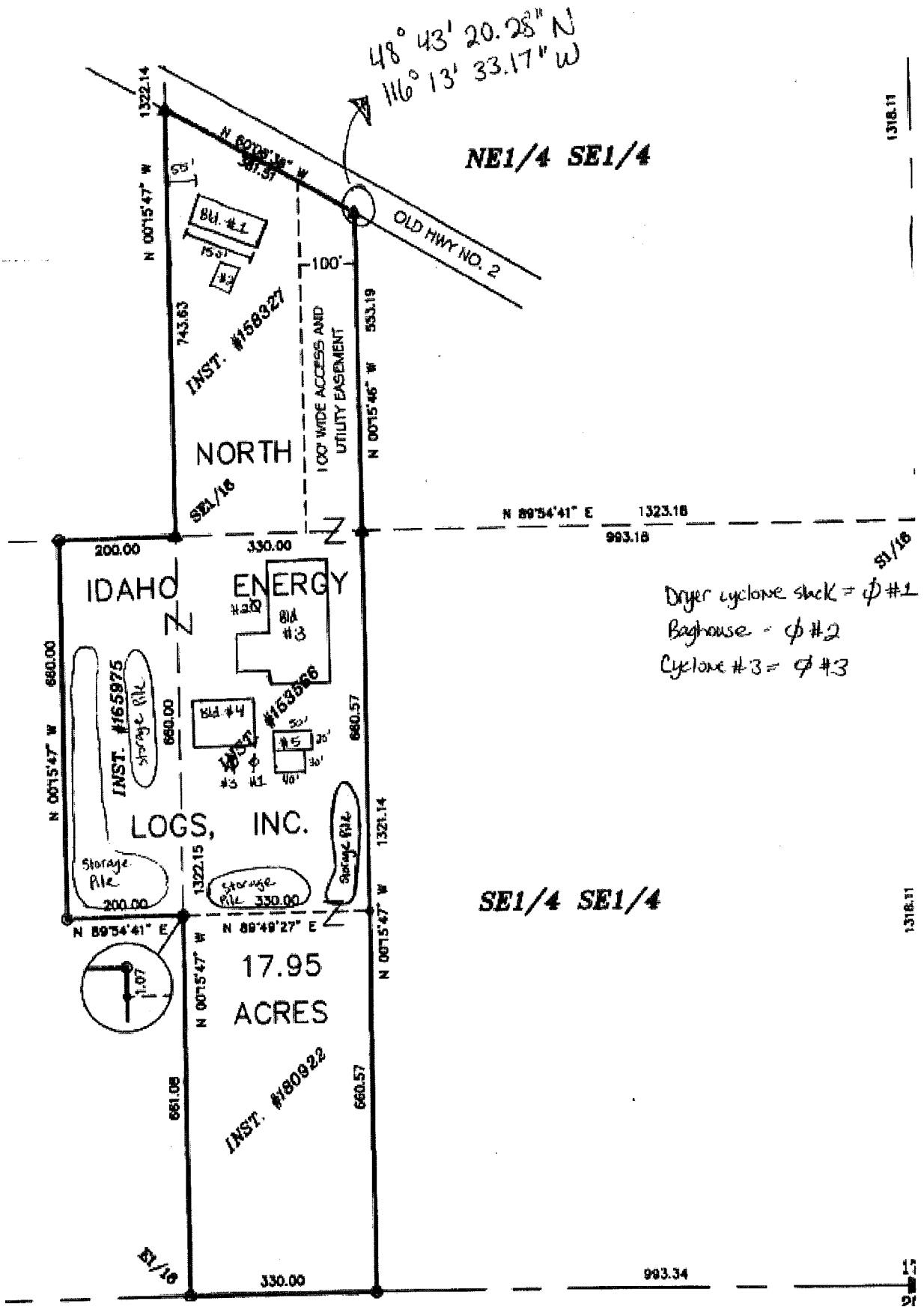
Emisison Unit ID	Source	PM-10		VOC		SO_2		NO_X		CO	
		lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
1	Rotary Dryer Cyclone #1	11.31	49.54	7.20	31.54	0.75	3.29	14.70	64.39	18.00	78.84
3	Cyclone #2/ Filter Baghouse	0.11	0.49								
4	Cyclone #3	0.94	4.13								
5	Fugitive Emissions- Stockpiles	0.10	0.44								
TOTAL		**12.46**	**54.59**	**7.20**	**31.54**	**0.75**	**3.29**	**14.70**	**64.39**	**18.00**	**78.84**

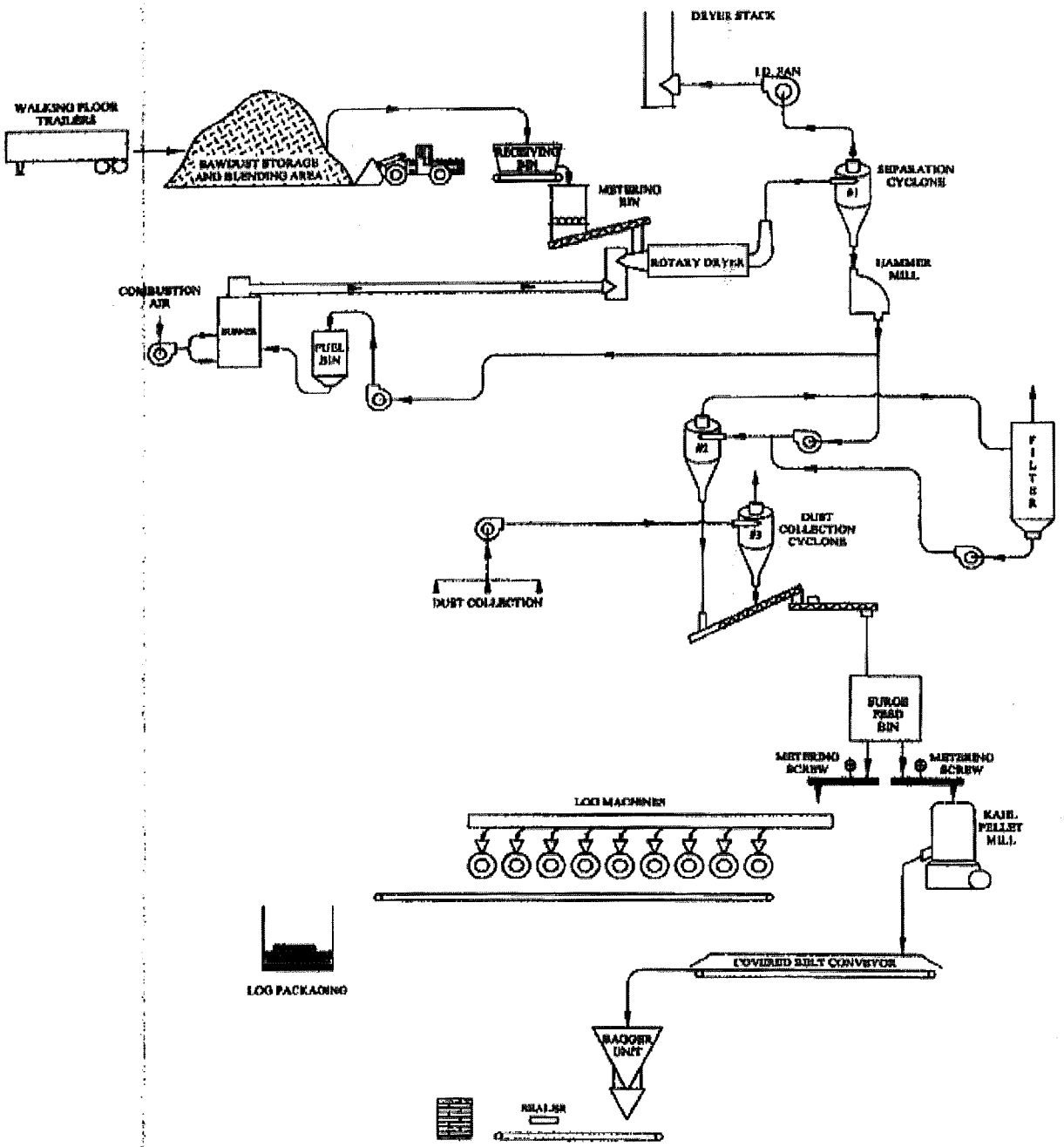
Uncontrolled PTE Emission Inventory

Emisison Unit ID	Source	PM-10		VOC		SO_2		NO_X		CO	
		lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
1	Rotary Dryer Cyclone #1	2262.00	9907.56	7.20	31.54	0.75	3.29	14.70	64.39	18.00	78.84
3	Cyclone #2/ Filter Baghouse	22.27	97.53								
4	Cyclone #3	188.67	826.39								
TOTAL		**2,473**	**10,831**	**7.20**	**31.54**	**0.75**	**3.29**	**14.70**	**64.39**	**18.00**	**78.84**

APPENDIX B

SCALED PLOT PLAN


48° 43' 20.28" N
116° 13' 33.17" W
NE1/4 SE1/4
OLD HWY NO. 2
N 60°08'16" W 381.37'
1322.14
N 00°15'47" W
65'
Bld. #1
15.5'
#2
100'
743.63
INST. #158327
100' WIDE ACCESS AND UTILITY EASEMENT
553.19
N 00°15'46" W
1318.11
NORTH
SE1/16
N 89°54'41" E
1323.18
993.18
200.00
330.00
IDAHO ENERGY
#20
Bld #3
Dryer cyclone stack = ϕ #1
Baghouse = ϕ #2
Cyclone #3 = ϕ #3
680.00
N 00°15'47" W
INST. #165975
Storage Pile
680.00
Bld #4
#163566
30'
#5
30'
40'
INST.
#3
#1
680.57
INST. #165975
LOGS, INC.
1321.14
Storage Pile
Storage Pile
Storage Pile 330.00
1322.15
200.00
N 89°54'41" E
N 89°48'27" E
1.07
N 00°15'47" W
17.95
ACRES
N 00°15'47" W
660.57
661.08
INST. #180922
SE1/4 SE1/4
1318.11
E1/16
330.00
993.34



FLOW DIAGRAM

North Idaho Energy Logs
Moyie Springs, Idaho

APPENDIX C

PTC APPLICATION FORMS

DEQ AIR QUALITY PROGRAM
1410 N. Hilton, Boise, ID 83706
For assistance, call the
Air Permit Hotline – 877-5PERMIT

PERMIT TO CONSTRUCT APPLICATION

Revision 1
01/11/07

Please see instructions on page 2 before filling out the form.

DEQ USE ONLY
Date Received
Project Number
Payment / Fees Included? Yes ☐ No ☐
Check Number

COMPANY NAME, FACILITY NAME, AND FACILITY ID NUMBER

1. Company Name	North Idaho Energy Logs		
2. Facility Name	Same	3. Facility ID No.	021-00015
4. Brief Project Description - One sentence or less	Modify rotary drum dryer heat source and increase throughput.		

PERMIT APPLICATION TYPE

5. ☐ New Facility ☒ New Source at Existing Facility ☐ Unpermitted Existing Source
☒ Modify Existing Source: Permit No.: 021-00015 Expired
☐ Required by Enforcement Action: Case No.:

6. ☒ Minor PTC ☐ Major PTC

FORMS INCLUDED

Included	N/A	Forms	DEQ Verify
☒	☐	Form GI – Facility Information	☐
☒	☐	Form EU0 – Emissions Units General __1__	☐
☐	☒	Form EU1 - Industrial Engine Information Please Specify number of forms attached: _____	☐
☐	☒	Form EU2 - Nonmetallic Mineral Processing Plants Please Specify number of forms attached: _____	☐
☐	☒	Form EU3 - Spray Paint Booth Information Please Specify number of forms attached: _____	☐
☐	☒	Form EU4 - Cooling Tower Information Please Specify number of forms attached: _____	☐
☐	☒	Form EU5 – Boiler Information Please Specify number of forms attached:	☐
☐	☒	Form HMAP – Hot Mix Asphalt Plant Please Specify number of forms attached: _____	☐
☐	☒	Form CBP - Concrete Batch Plant Please Specify number of forms attached: _____	☐
☒	☐	Form BCE - Baghouses Control Equipment 1	☐
☒	☐	Form CYS – Cyclone Seperator Control Equipment 3	☐
☐	☒	Form SCE - Scrubbers Control Equipment	☐
☒	☐	Forms EI-CP1 - EI-CP4 - Emissions Inventory– criteria pollutants (Excel workbook, all 4 worksheets)	☐
☒	☐	PP – Plot Plan	☐
☒	☐	Forms MI1 – MI4 – Modeling (Excel workbook, all 4 worksheets)	☐
☒	☐	Form FRA – Federal Regulation Applicability	☐

DEQ AIR QUALITY PROGRAM
1410 N. Hilton, Boise, ID 83706
For assistance, call the
Air Permit Hotline – 877-5PERMIT

PERMIT TO CONSTRUCT APPLICATION

Revision 1
01/11/07

Please see instructions on page before filling out the form.

All information is required. If information is missing, the application will not be processed.

IDENTIFICATION

1.	**Company Name**	North Idaho Energy Logs
2.	**Facility Name (if different than #1)**	Same
3.	**Facility I.D. No.**	021-00015
4.	**Brief Project Description:**	Modify rotary drum dryer heat source and increase throughput.

Facility Information

5.	**Owned/operated by: (√ if applicable)**	☐ Federal government ☐ County government ☐ State government ☐ City government
6.	**Primary Facility Permit Contact Person/Title**	Jim Fairchild
7.	**Telephone Number and Email Address**	208-267-5311 jniels@imbris.net
8.	**Alternate Facility Contact Person/Title**	
9.	**Telephone Number and Email Address**	
10.	**Address to which permit should be sent**	P.O. Box 571
11.	**City/State/Zip**	Moyie Springs, ID 83845
12.	**Equipment Location Address (if different than #9)**	1.5 Miles West of Moyie Springs on County Road 62
13.	**City/State/Zip**	Moyie Springs, Idaho 83845
14.	**Is the Equipment Portable?**	☐ Yes ☒ No
15.	**SIC Code(s) and NAISC Code**	**Primary SIC:** **2499** **Secondary SIC (if any):** **NAICS:**
16.	**Brief Business Description and Principal Product**	Fireplace logs and pellet manufacturing
17.	**Identify any adjacent or contiguous facility that this company owns and/or operates**	

PERMIT APPLICATION TYPE

18.	**Specify Reason for Application**	☐ New Facility ☒ New Source at Existing Facility ☒ Modify Existing Source: Permit No.: 021-00015 Expired ☐ Unpermitted Existing Source: ☐ Required by Enforcement Action: Case No.:

CERTIFICATION

IN ACCORDANCE WITH IDAPA 58.01.01.123 (RULES FOR THE CONTROL OF AIR POLLUTION IN IDAHO), I CERTIFY BASED ON INFORMATION AND BELIEF FORMED AFTER REASONABLE INQUIRY, THE STATEMENTS AND INFORMATION IN THE DOCUMENT ARE TRUE, ACCURATE, AND COMPLETE.

19.	Responsible Official's Name/Title	Jim Fairchild / Vice President
20.	RESPONSIBLE OFFICIAL SIGNATURE	Date: 4-24-2008
21.	☒ Check here to indicate you would like to review a draft permit prior to final issuance.	

Emissions Unit - General **Form EU0**

DEQ AIR QUALITY PROGRAM
1410 N. Hilton, Boise, ID 83706
For assistance, call the
Air Permit Hotline – 877-5PERMIT

PERMIT TO CONSTRUCT APPLICATION

Revision 1
01/11/07

Please see instructions on page before filling out the form.

IDENTIFICATION

Company Name:	Facility Name:	Facility ID No:
North Idaho Energy Logs	Same	021-00015
Brief Project Description:	Modify rotary drum dryer heat source and increase throughput.	

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

1. Emissions Unit (EU) Name:	Rotary Drum Dryer/ Burner
2. EU ID Number:	D01
3. EU Type:	☒ New Source ☐ Unpermitted Existing Source ☒ Modification to a Permitted Source -- Previous Permit #:021-00015 Date Issued: October 1998
4. Manufacturer:	
5. Model:	
6. Maximum Capacity:	Dryer- 8.0 tons per hour Burner- 30.0 MMBtu/hr
7. Date of Construction:	Unknown
8. Date of Modification (if any)	
9. Is this a Controlled Emission Unit?	☐ No ☒ Yes If Yes, Complete the following section. If No, go to line 18.

EMISSIONS CONTROL EQUIPMENT

10. Control Equipment Name and ID:	Dryer Cyclone #1		
11. Date of Installation:	1996	12. Date of Modification (if any):	
13. Manufacturer and Model Number:	PHV 12-LC		
14. ID(s) of Emission Unit Controlled:	Dried wood particles		
15. Is operating schedule different than emission units(s) involved?:	☐ Yes ☒ No		
16. Does the manufacturer guarantee the control efficiency of the control equipment?	☐Yes ☒No (If yes, attach and label manufacturer guarantee)		

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency	99.5	99.5				

17. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency.

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

18. Actual Operation	20 hr/day 5 day/wk 50 wk/yr
19. Maximum Operation	24 hr/day 7 day/wk 52 wk/yr

REQUESTED LIMITS

20. Are you requesting any permit limits?	☒ Yes ☐ No (If Yes, check all that apply below)
☐ Operation Hour Limit(s):	
☒ Production Limit(s):	8.0 ton per hour - 70,080 ton per year production
☐ Material Usage Limit(s):	
☐ Limits Based on Stack Testing	
☐ Other:	
21. Rationale for Requesting the Limit(s):	Maximum expected production rate

DEQ AIR QUALITY PROGRAM
1410 N. Hilton, Boise, ID 83706
For assistance, call the
Air Permit Hotline: 1-877-5PERMIT

PERMIT TO CONSTRUCT APPLICATION

Revision 0
04/02/07

Please see instructions on page 3 before filling out the form.

IDENTIFICATION

Company Name:	North Idaho Energy Logs	**Facility Name:**	Same	**Facility ID No.:**	021-00015

Brief Project Description: Modify rotary drum dryer heat source and increase throughput.

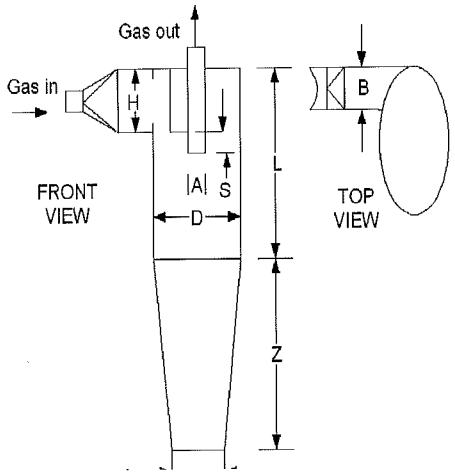
CYCLONE SEPARATOR INFORMATION

Equipment Description

Manufacturer: HJ Burns Company

Model Number: HE-11-ELC

Dimensions



Give dimensions of cyclone. (See sample diagram above.)

1. B: 24 in.
2. H: 72 in.
3. S: 118 in.
4. L: 27 in.
5. Z: 336 in.
6. D: 132 in.
7. A: 66 in.
8. J: 24 in.

Particulate Size Distribution Data

Micron range	Particle size distribution weight %	Manufacturer's guaranteed removal efficiency for each micron range
0.5-1.0		
1.0-5.0		24.3
5-10		82.1
10-20		98.4
Over 20		98.4

Type of Cyclone: ☐ Wet ☒ Dry

Type of Cyclone Unit: ☒ Single ☐ Quadruple ☐ Dual ☐ Multiclone

Blower: Blower horsepower: 200 hp
Design flow rate: 39,500 scfm
Draft: ☐ Forced ☒ Induced

Design Criteria: Cyclone configuration: ☐ Positive pressure ☒ Negative pressure

Pre-Treatment Device: ☐ Cyclone ☐ Knock-out chamber ☐ Precooler ☒ None ☐ Preheater

Post-Treatment Device: ☐ Baghouse/Cartridge ☐ HEPA ☐ Other:

Process Stream Characteristics	
Brief Description of Process	.Dry fuel is introduced to a 30 MMBtu/hr wood burner which generates heat for a triple pass rotary drum dryer. Dried product is carried through the dryer to Cyclone #1 which seperates it from the exhaust stream. The collected material is then sent to Cyclone #2 for further processing. The exhaust gas is discharged to the atmosphere.
Flow Data	Gas stream temperature: 120 degrees F Moisture content: grams of water/cubic feet (ft^3) of dry air Pressure drop range High: 5.0 in. H_2O Low: 3.5 in. H_2O Dew point temperature of process stream: degrees F Inlet flow rate: 39,500 ACFM
Dust Collection Device	☒ Pneumatic conveyor ☒ Rotary airlock values ☐ Screw conveyors ☐ Closed container ☐ Double dump ☐ Drag conveyor ☐ Manual discharge device: ☐ Slide gate OR ☐ Hinged doors or drawers
Operating Schedule	Normal: 20 hours/day 5 days/week 50 weeks/year Maximum: 24 hours/day 7 days/week 52 weeks/year

DEQ AIR QUALITY PROGRAM
1410 N. Hilton, Boise, ID 83706
For assistance, call the
Air Permit Hotline: 1-877-5PERMIT

PERMIT TO CONSTRUCT APPLICATION

Revision 0
04/02/07

Please see instructions on page 3 before filling out the form.

IDENTIFICATION

Company Name:	North Idaho Energy Logs	**Facility Name:**	Same	**Facility ID No.:**	021-00015

Brief Project Description: Modify rotary drum dryer heat source and increase throughput.

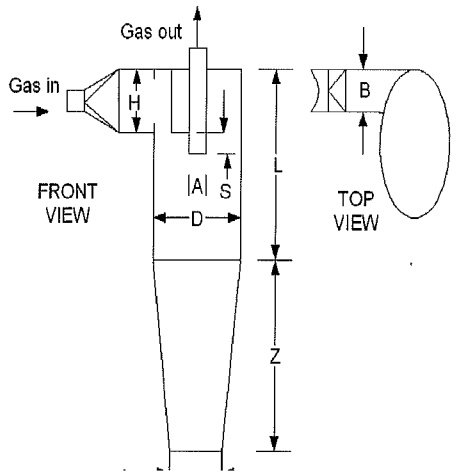
CYCLONE SEPARATOR INFORMATION

Equipment Description

Manufacturer:

Model Number:

Dimensions



Give dimensions of cyclone. (See sample diagram above.)

1. B: 16 in.
2. H: 38 in.
3. S: 46 in.
4. L: 84 in.
5. Z: 192 in.
6. D: 126 in.
7. A: 52 in.
8. J: 16 in.

Particulate Size Distribution Data

Micron range	Particle size distribution weight %	Manufacturer's guaranteed removal efficiency for each micron range
0.5-1.0		Not available
1.0-5.0		
5-10		
10-20		
Over 20		

Type of Cyclone ☐ Wet ☒ Dry

Type of Cyclone Unit ☒ Single ☐ Quadruple ☐ Dual ☐ Multiclone

Blower
Blower horsepower: 50 hp
Design flow rate: 15,250 scfm
Draft: ☒ Forced ☐ Induced

Design Criteria
Cyclone configuration: ☒ Positive pressure ☐ Negative pressure

Pre-Treatment Device
☒ Cyclone ☐ Knock-out chamber
☐ Precooler ☐ None
☐ Preheater

Post-Treatment Device
☒ Baghouse/Cartridge
☐ HEPA
☐ Other:

Process Stream Characteristics	
Brief Description of Process	.Material collected in Cyclone #1 is introduced to a relay blower inlet via a rotary airlock and conveyed to Cyclone #2. Material collected in Cyclone #2 is discharged to a Baghouse and is then returned back to Cyclone #2 and included in the final product. Cyclone #2 does not vent directly to the atmosphere.
Flow Data	Gas stream temperature: 70 degrees F Moisture content: grams of water/cubic feet (ft^3) of dry air Pressure drop range High: 4.5 in. H_2O Low: 3.0 in. H_2O Dew point temperature of process stream: degrees F Inlet flow rate: 15,250 ACFM
Dust Collection Device	☒ Pneumatic conveyor ☒ Rotary airlock values ☐ Screw conveyors ☐ Closed container ☐ Double dump ☐ Drag conveyor ☐ Manual discharge device: ☐ Slide gate OR ☐ Hinged doors or drawers
Operating Schedule	Normal: 20 hours/day 5 days/week 50 weeks/year Maximum: 24 hours/day 7 days/week 52 weeks/year